

**IN THE CLAIMS:**

Kindly amend claims 1-6 and add new claims 7-19 as follows.

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

1. (Currently Amended) A method of storing substantial data integrating shape and physical properties, ~~characterized by comprising the following steps:~~  
an external data input step (A) for inputting external data ~~(12)~~ consisting of boundary data of an object; ~~(1)~~;  
an Octree division step (B) for dividing, by ~~modified~~ Octree division, the external data into cubical ~~divided cells with (13) which~~ boundary surfaces are orthogonal to each other;; and  
a cell data storage step (C) for storing the values of various physical properties for each of the cells.

2. (Currently Amended) The method of storing substantial data integrating shape and physical properties according to claim 1, wherein in said Octree division step (B), each of the divided cells is classified as ~~either into~~ internal cells ~~(13a)~~ located in the interior ~~or in the outside region~~ of the object ~~or and~~ boundary cells ~~(13b)~~ including a boundary surface ~~s of the object~~.

3. (Currently Amended) The method of storing substantial data integrating shape and physical properties according to claim 2, wherein ~~each~~ said boundary cells ~~(13b)~~ is re-divided by ~~modified~~ the Octree division until acquiring cut points ~~sufficient enough~~ to enable the reconstruction of boundary shape elements including the boundary surfaces included in the external data.

4. (Currently Amended) The method of storing substantial data integrating shape and physical properties according to claim 2, wherein ~~each~~ said internal cell ~~(13a)~~ has one kind of physical property value as an attribute, and ~~each~~ the boundary cell ~~(13b)~~ has two kinds of physical property values ~~relating respectively to~~ of the interior of the object and to regions outside of the object.

5. (Currently Amended) The method of storing substantial data integrating shape and physical properties according to claim 1, wherein ~~said~~ physical property values consist of constant values which do not change by simulation, and variables which change as a result of simulation.

6. (Currently Amended) The method of storing substantial data integrating shape and physical properties according to claim 1, wherein the external data (12) is ~~selected from the group consisting of~~ polygon data representing a polyhedron element, a tetrahedron element or a hexahedron element for a finite-element method, curved surface data for a three dimensional CAD or CG tool, and/or data for representing the surface of another solid as information comprising partial planes and curved surfaces.

7. (New) A method of storing substantial data integrating shape and physical properties, comprising the following steps:

inputting to a computer external data consisting of boundary data of an object;

dividing, by modified Octree division, the external data into cubical first cells with boundary surfaces orthogonal to each other; and

storing the values of physical properties for each of the first cells.

8. (New) A method of storing substantial data integrating shape and physical properties according to claim 7, wherein each first cell is classified as either an internal cell located in the interior or the outside region of the object or a boundary cell including a boundary surface of the object.

9. (New) A method of storing substantial data integrating shape and physical properties according to claim 8, wherein each boundary cell is re-divided by modified Octree division until acquiring cut points sufficient to reconstruct boundary shape elements including boundary surfaces included in the external data.

10. (New) The method of storing substantial data integrating shape and physical properties according to claim 8, wherein each internal cell has one kind of physical property value as an attribute, and each boundary cell has two kinds of physical property values relating respectively to the interior of the object and to regions outside of the object.

11. (New) A method of storing substantial data integrating shape and physical properties according to claim 7, wherein physical property values consist of constant values that do not change by simulation and variables that change as a result of simulation.

12. (New) A method of storing substantial data integrating shape and physical properties according to claim 7, wherein the external data is selected from the group consisting of polygon data representing a polyhedron element, a tetrahedron element or a hexahedron element for a finite-element method, curved surface data for a three dimensional CAD or CG tool, and data for representing the surface of another solid as information comprising partial planes and curved surfaces.

13. (New) A method of storing substantial data integrating shape and physical properties according to claim 7, wherein each first cell is classified as either an internal cell located in the interior of the object or a boundary cell including a boundary surface of the object, then each first cell that is a boundary cell is divided by modified Octree division into cubical second cells with boundary surfaces orthogonal to each other, and each second cell is classified as either an internal cell located in the interior of the object or a boundary cell including a boundary surface of the object.

14. (New) A method of storing substantial data integrating shape and physical properties according to claim 13, wherein each second cell that is a boundary cell is divided by modified Octree division into cubical third cells with boundary surfaces orthogonal to each other, and each third cell is classified as either an internal cell located in the interior of the object or a boundary cell including a boundary surface of the object; and

the method further includes the step of:

storing the values of physical properties for each of the second cells and each of the third cells.

15. (New) The method of storing substantial data integrating shape and physical properties according to claim 14, wherein each internal cell has one kind of physical property value as an attribute, and each boundary cell has two kinds of physical property values relating respectively to the interior of the object and to regions outside of the object.

16. (New) A method of storing substantial data integrating shape and physical properties according to claim 15, wherein physical property values consist of constant values that do not change by simulation and variables that change as a result of simulation.

17. (New) A method of storing substantial data integrating shape and physical properties according to claim 16, wherein the external data is selected from the group consisting of polygon data representing a polyhedron element, a tetrahedron element or a hexahedron element for a finite-element method, curved surface data for a three dimensional CAD or CG tool, and data for representing the surface of another solid as information comprising partial planes and curved surfaces.

18. (New) A method of storing substantial data integrating shape and physical properties according to claim 17, further comprising the step of:

acquiring cut points, by the division of the external data, sufficient to reconstruct boundary shape elements including boundary surfaces included in the external data.

19. (New) A method of storing substantial data integrating shape and physical properties according to claim 18, further comprising the step of:  
expressing corner points by cut points possessed by adjacent boundary cells.